In the claims

1. (Original) A communication system comprising optical line termination (OLT) equipment coupled to a plurality of outstations through an optical communication resource, the optical communication resource including an optical splitter providing a point-to-multipoint concentration/distribution function between the OLT equipment and the plurality of outstations, wherein:

the OLT equipment comprises collision detection logic to support media access control of the plurality of outstations to the OLT equipment via the optical splitter and over the optical communication resource, the collision detection logic responsive to packet-switched encoded data communicated thereto through the optical communication resource, the packet-switched encoded data realising a transport mechanism through the optical communication resource; and wherein

each of the plurality of outstations is adapted to pass data in a packet-switched format to and from the optical communication resource such that packet-switched encoded data is transported, in use, directly between the outstation and the OLT equipment.

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2. (Original) The communication system of claim 1, wherein the collision detection logic includes at least one of:

means for monitoring a root-mean-square (rms) level of a signal communicated across the optical communication resource on one of an instantaneous and time-averaged basis;

means for monitoring a peak-to-peak level of a signal communicated across the optical communication resource on one of an instantaneous and time-averaged basis;

means for identifying invalid recovered data bits; and

means for contrasting received signal signatures to identify irregularities indicative of data collision.

3. (Original) The communication system of claim 1, wherein the packet-switched encoded data is Internet Protocol (IP).

4. (Original) The communication system of claim 3, wherein the plurality of outstations each include a signal processor arranged, in use, to code incident IP packets within a predetermined line code.

5. (Original) Optical line termination (OLT) equipment responsive, in use, to a modulated optical carrier supporting a packet-switched protocol coded into a predetermined line code format, the modulated optical carrier emanating from at least one outstation, the optical line termination equipment comprising:

collision detection logic to support media access control of a plurality of outstations to the OLT equipment, the collision detection logic responsive to packet-switched encoded data communicated thereto.

6. (Original) Optical line termination (OLT) equipment according to claim 5, further comprising:

means for coding packet-switched protocol packets into a predetermined line code format; and

means for modulating the predetermined line code onto an optical carrier;

wherein packet-switched coded data realises a transport mechanism through an optical communication resource connectable, in use, to the OLT equipment; and wherein the OLT equipment is adapted to pass data in a packet-switched format to and from the optical communication resource such that packet-switched encoded data is transported, in use, directly between the OLT equipment and an outstation.

7. (Currently Amended) Optical line termination (OLT) equipment according to claim 5, further comprising means for notifying outstations of a data collision event, said means for notifying responsive to the collision detection logic.

8. (Original) Optical line termination (OLT) equipment according to claim 5, wherein the packet-switched protocol is Internet Protocol (IP).

9-11. (Canceled)

12. (Original) A method of operating base station equipment for a communication exchange, the method comprising:

receiving an optical carrier modulated with a line code supporting packet-switched protocol packaged data;

detecting uplink collisions; and

administering media access control to a plurality of outstations connectable to the communication exchange through an optical communication resource, wherein media access control is regulated by the base station according to uplink collision of packet-switched encoded data received in modulated optical carriers.

13. (Original) The method of operating the base station equipment of claim 12, further comprising:

coding packet-switched packets into a line code format; and

modulating the predetermined line code onto an optical carrier;

wherein packet-switched encoded data realises a transport mechanism through the optical communication resource; and wherein the base station is adapted to pass data in an packet-switched format to and from the optical communication resource such that packet-switched encoded data is transported, in use, directly between the base station and an outstation.

14. (Original) The method of operating the base station equipment of claim 12, wherein the packet-switched protocol is Internet Protocol (IP).

15. (Original) A method of communicating information between outstations and optical line termination equipment via an optical fibre, the method comprising:

receiving data packetised in a packet-switched format;

coding the packet-switched formatted data into a line code;

modulating the line code onto an optical carrier;

applying a resultant modulated optical carrier to the optical communication resource, wherein the packet-switched formatted data realises a transport mechanism through the optical fibre and the packet-switched formatted data is passed to and from the optical communication resource such that packet-switched formatted data is transported, in use, directly between the outstations and the optical line termination equipment;

detecting, at the optical line termination equipment, uplink collisions; and

administering media access control of outstations according to the detecting of uplink collision of packet-switched encoded data received in modulated optical carriers.

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16. (Original) The method of communicating information between outstations and optical line termination equipment via an optical fibre according to claim 15, wherein the packet-switched protocol is Internet Protocol (IP).

17. (Currently Amended) A computer-readable medium comprising computer-*readable instructions for controlling exchange equipment* to administer media access control of a plurality of optical outstations coupled to the exchange equipment through an optical fibre, the ~~computer program product~~ computer-readable instructions comprising:

code that directs the exchange equipment to receive an optical carrier modulated with a line code supporting packet-switched protocol packaged data;

code that directs the exchange equipment to detect uplink collisions; and

code that directs the exchange equipment to administer media access control of the plurality of optical outstations based on detection of uplink collision of packet-switched protocol encoded data received in modulated optical carriers;

~~wherein the codes reside in a computer readable medium.~~

18. (Previously Presented) The computer–readable medium comprising computer-readable instructions of claim 17, wherein the packet-switched protocol is Internet Protocol (IP).

19. (Previously Presented) The computer–readable medium comprising computer-readable instructions of claim 18, further comprising:

code that directs the exchange equipment to code IP packets into a line code format; and

code that directs the exchange equipment to modulate the line code onto an optical carrier, wherein IP encoded data realises a transport mechanism through the optical fibre;

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code that directs the exchange equipment to pass data in an IP format to and from the optical fibre such that IP encoded data is transported, in use, directly between the exchange equipment and at least one outstation.